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REPORT
ON
PROPOSED DOCKS,
AND
EXTENSION OF THE LACHINE CANAL,
THROUGH THE CITY OF
MONTREAL.

BY G. F. COCKBURN, *Esq.*
Civil Engineer.

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**JUNE 1854.**

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Montreal, 10th June 1854.

*To the Chairman of Sub-Committee to consider of  
Harbour, Dock and other City Improvements.*

Sir,

Having been requested on the 23rd ult., to take charge of the Plans in course of preparation by your Committee, and to make such report on the subject, as could be prepared in the short time that would elapse, before their intended application to Parliament for a Charter, I beg to state, that I have examined the site for New Docks suggested by Messrs. Gzowski & Keefer, in their Report to the Harbour Commissioners, under date 28th January 1853, below the Victoria Road, and have also examined the line proposed by them, for the extension of the Lachine Canal through the City, to connect with the said Docks.

The ground below the Victoria Road, is by far the most advantageously situated, for the formation of Docks, out of the reach of the winter floods of the St. Lawrence, and for the admission of vessels into them, by Locks from Hochelaga Bay, below the Current St. Mary. It appears to me, that an area of about 23 acres will afford ample accommodation for the increased number, and larger class of vessels, which may be expected to come to Montreal, upon the thorough deepening of Lake St. Peter, and that this area should be divided into two Basins, one to be formed near Viger Square, and the other below the Victoria Road, to be connected together by a broad reach, which will be in extent about 7 acres.

According to the opinions brought forward, in the papers lately submitted to the Board of Trade, large accommodation for shipping will be required at Hochelaga Bay, upon the completion of the Montreal and Bytown Railway, to meet the

37556

wants of the lumber trade, which is certain to spring up from its location in that vicinity, and that undertaking is sufficiently far advanced, to warrant taking steps to have the accommodation ready, when it will be wanted, and the ground between the Victoria Road and the Ruisseau Migeon, affords the necessary facilities to the above Railway, and also to the North Shore Railway from Quebec, for the delivery and storing of lumber and general merchandize in any quantity; and if the Docks are extended as far as Viger Square, there is no other position within the limits of the City, where the power of ministering to its wants, could be more easily or more economically applied, or which would prove more attractive to shipping, and I may say that there is no other position, where Docks could be placed, whence they would better stimulate the activity of the City, or impart more effectually a vital impulse to its prosperity.

The ground above indicated, also affords ample space, and facility, for carrying on the trade of shipbuilding, which once belonged to that quarter of the City, but which has been lost to it, from the greater facilities, afforded by the Lachine Canal. Many vessels are now annually built in the upper waters of the St. Lawrence, and sent to England for sale, and an increasing demand for such vessels having sprung up, there is every reason to believe that ship building yards of immense capacity, would be rapidly formed in the vicinity of these New Docks, as vessels of the largest tonnage could be more cheaply built here, and as easily launched, as where they are now constructed.

At the entrance to the Docks from Hochelaga Bay, Breast wharves, should be constructed for a considerable distance, and the excavation for the Docks will supply an abundance of material for their construction, on an ample scale, although in the first instance, I would limit the expenditure upon them, to a small sum. I am aware that the Harbour Commissioners, are about to extend the present wharf accommodation, by constructing another wharf, at the foot of Jacques Cartier Square, and one at the foot of Monarque Street, but the additional accommodation to be thus afforded, is not of the exact kind aimed at by the proposed New Dock Company, which is to afford facilities to the largest class of vessels, and also to

their repair and construction under circumstances peculiarly favourable and during winter.

Presuming the New Docks to be constructed, in the above locality, provision must be made for supplying them with water. This can be done as indicated in the above report by Pipes laid from St. Paul's lock, or from St. Gabriel lock; The former will give a head of 18 feet, the latter of 9 feet. In the latter case the length of Pipe will be less, but from the lesser head, the size of the Pipe will require to be greater, and thus the difference of expence between the two, inconsiderable.

It can also be done by the formation of a Feed Reservoir; an attentive examination of the topographical features of the Country east of Montreal, has confirmed me in the opinion, that a Feed Reservoir sufficiently elevated, can be formed at a less expence, and greater power of supply, than can be obtained from pipes, at any reasonable cost. The supply of water for lockage should not be less than 800 gallons per minute, and a pipe to supply this quantity, would require to be not less than 15 inches in Diameter. The cost of procuring and laying which will be considerable, and it is very desirable that the power to form a reservoir, to the extent of 50 acres, should be obtained from the legislature; as well as authority to lay pipes, should a further, and more accurate examination, prove them to be necessary.

It can also be best done, by direct extension of the present Lachine Canal to the New Docks, either at the level of the upper or under reach of St. Paul's Lock, or at the level of the under reach of St. Gabriel's Lock. The last is the level recommended in the above report, but there are various reasons for adopting the level of the upper reach of the St. Gabriel Lock, which appear to me to be paramount; however it is not necessary now to enter into the details of the exact level, which cannot properly be fixed, until a minute survey of the exact line to be adopted in either case, has furnished the DATA upon which either of them may be safely pronounced the more eligible. There need be no fear that the flooding of any portion of the city, may result from the adoption of a higher level. The present Canal is elevated above a large portion of the city, without any such fear being

entertained, and the surplus excavation can be disposed of, so as to ensure absolute freedom from any such contingency.

The extension of the Canal, will, it is true, affect the existing sewerage, gas, and water, supply, and the usual thoroughfares of the city; but it appears to me with the natural fall of so large a portion of the city, there ought to be no difficulty in having good sewerage. The stream which now passes under the Lachine Canal need not be intercepted, and the tunnel which discharges it into the Elgin Basin, and the tunnel which runs under Lacroix Street, may be sufficient to carry off all the drainage of the city, lying between the line of Notre Dame street and Craig street, and if not adequate, another can be formed, and drains with sufficient fall can be constructed, for that portion of the city, lying to the North of the Canal, and the necessity for constructing them, on a comprehensive, and well considered plan, imposed by extending the Canal, is a condition attached to the project, which the city may have cause to rejoice in.

The gas and water pipes, can be passed under the Canal in culverts, constructed to admit of their inspection and repair at all times, and it is presumed that the number required might be limited, by the employment of sufficiently large pipes.

The interference with the thoroughfares, which the swing bridges of the Canal would give rise to, is an objection more formidable in appearance, than reality, for by having a number of them, and by never allowing two next each other to be open at the same time, and by constructing them to move on a pivot in the centre of the Canal, with space for the passage of vessels each way at the same moment, I believe the delay and inconvenience to passengers, would be reduced to a minimum amount. It is usually now a matter of indifference to parties proceeding across Craig street, to the line of Sherbrooke Street, by what street they proceed, and if one bridge is open the next to it on either side would be at their service, and if this arrangement was carried out, I believe the result would be entire satisfaction on the part of the Community at large. Individual cases of inconvenience might arise, but these occur continually in every city, from the repair of streets, the laying



down of pipes, and a variety of perpetually recurring obstructions, to the thoroughfare in some quarter or other.

At the suggestion of some members of your Committee, I have caused a line to be run from St. Paul's Lock, so as to strike the deep ravine running between St. Catherine street and Sherbrooke street, and crossed by Bleury street. The distance on this line will be 6  $\frac{2}{5}$  miles, and the amount of excavation about 2,500,000 cubic yards.

The distance from the Seminary Basin, will be about 3 $\frac{1}{2}$  miles to Hochelaga Bay, and the amount of excavation about 800,000 c. yds. taking the level of the under reach of St. Gabriel Lock as the level of extension ; if a higher level is taken, this will be lessened considerably, but there will be the cost of another lock. There has not been time to make any calculations perfectly accurate, but the approximate estimate here given, may be relied on, as not in excess, of that required.

By selecting the line along Craig street, and the level of the present Canal at the Seminary Basin, the least lockage at the entrance to the Docks will be required. The quantity of land necessary for the two Docks, and their connection as proposed will be about 60 acres, and a little more than that quantity will be required for the Canal. Obtaining possession of so large a quantity of valuable land, especially that portion required for the Canal, will of course involve a large outlay ; but the land so acquired, will be increased in value, by the construction of the Canal, and this calculation supposes an average breadth of 400 feet to be taken, which will give the necessary room for warehouses, and thoroughfares, and when the Docks and Canal are finished, the whole purchase money may be recovered back with a handsome surplus, and it will be admitted, that the construction of the Canal, will raise the value of all other landed property in the City, both directly and indirectly.

We see at Point St. Charles, the commencement of a costly work, which will advance the reputation of Canada, and of this City in no small degree. This work is estimated to cost £1,400,000 str. The whole of these projected Docks and Canal, with a long line of warehouses, will cost not one half of the above sum, and when the land is resold, not one quar-



ter of it, and I ask any citizen of Montreal, to say which of the two works will more largely and directly benefit the City.

The plans which have been prepared, are presented with this report, and others are in course of preparation which will shew how the ground to be taken up by the Docks and Canal, is at present occupied and from which it will be observed, how comparatively easy and economical these works will be, if commenced immediately ; each years delay will add to their cost, as those portions of the City which were laid waste by the disastrous fire of 1852, are being rapidly rebuilt.

(Signed,)

G. F. COCKBURN.

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